DOCUMENT RESUME

ED 227 197 UD 022 690

AUTHOR Leon F.
TITLE The Impact of Immigration on U.S. Population Size. Population Trends and Public Policy.
INSTITUTION Population Reference Bureau, Inc., Washington, D.C.
PUB DATE Jan 81
NOTE 24p.
AVAILABLE FROM Population Reference Bureau, Inc., 1337 Connecticut Avenue, N.W., Washington, D.C. 20036 (write for price).
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Demography; *Immigrants; *Migration; *Population Growth; *Population Trends; *Public Policy
IDENTIFIERS Population Policies; *Population Projections; United States

ABSTRACT

Emphasizing the increasing significance of immigration as a determinant of U.S. population growth, and stressing the need for developing population policy upon which future immigration policy might be based, this report presents projections of U.S. population to determine the impact of immigration in the next 100 years. The projections, given for the years 2000 to 2080, have been calculated under assumptions of constant, increased, or decreased fertility, and varying assumed levels of annual net immigration. It is suggested that (1) the differences attributed to fertility and immigration become more dramatic the longer the projection period; (2) fertility changes are stronger determinants of future population size than immigration changes; and (3) immigration becomes an increasingly important contributor to population growth over time. Also discussed are the effects of fertility and immigration on the future age composition and resident versus immigrant composition of the population, and the implications of the population size alternatives for population and immigration policy. The appendix describes the projection methodology and assumptions. (MJL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED227197

The Impact of Immigration on U.S. Population Size

by Leon F. Bouvier

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
R. WORRALL
Population Reference Bureau
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

UD 022 690

Since the onset of the 20th century, the population of the United States has tripled—from 75 million in 1900 to over 226 million in 1980. Both natural increase (births minus deaths) and net immigration (more immigrants than emigrants) have contributed to this growth.

During the 19th and much of the 20th century, natural increase accounted for a substantial portion of all population growth. Recently, the contribution of net immigration has increased considerably. If both legal and illegal entries are included, close to half of all growth can now be attributed to net immigration. This is even greater than the impact of immigration on U.S. population growth in the late 19th century and first decade of this century, when waves of European immigrants arriving in the U.S. in search of a new life totaled as high as one million in some years.

The *number* of immigrants has also increased in the last few years, in large part due to the many refugees and undocumented entrants. Perhaps 1- 4 million persons may have immigrated to the United States during 1980. This exceeds the million entries recorded in 1907 and again in 1914. Thus, immigration now appears to be almost as important as fertility insofar as U.S. population growth is concerned.

It is important to bear in mind that "an increase or decrease in the percentage of population growth due to immigration can be the result of changes in any one or a combination of all four components (i.e., fertility, mortality, immigration, emigration). Thus the number of immigrants can decrease while the percentage of population growth due to immigration increases. Interpretation of a change in the percentage of population growth due to net migration requires knowledge of the direction and size of change of all four components."[1]

In the early 1900s, annual immigration sometimes exceeded one million and though natural increase was also high, the sheer level of immigration substantially affected population growth. By the early 1970s, annual *legal* immigration levels were around 400,000. However, fertility had fallen to the point where annual births would be outnumbered by deaths in the not-too-distant future if current trends continued. Thus, net immigration once again had become an important contributor to population growth, more because of low fertility than high level of immigration.

As we enter the 1980s, both factors are at work: the highest levels of immigration ever noted combined with declining levels of natural increase. Clearly, immigration will continue being an extremely important factor in the population growth of the U.S. for the foreseeable future.

This report examines how future U.S. population size might vary according to different levels of net immigration, also taking into account varying possible trends in future fertility. The results should be of value to decisionmakers concerned with U.S. immigration and population policy.

The Impact of Immigration on U.S. Population Size, by Leon F. Bouvier, is the first report in the new series of occasional papers, *Population Trends and Public Policy*, published by the Population Reference Bureau, Inc. This series is devoted to the discussion of timely demographic or population issues that are of particular concern to the policymaker.

The author, Dr. Leon F. Bouvier, is Director of Demographic Research and Policy Analysis at PRB. He has previously served as demographic advisor to the International Statistical Programs Center of the U.S. Bureau of the Census, the Select Committee on Population of the U.S. House of Representatives, and, most recently, the U.S. Select Commission on Immigration and Refugee Policy.

Population Trends and Public Policy, Number 1, January, 1981

Editor: Mary Barberis

Design and Production: Sally A. Janin

The Impact of Immigration on U.S. Population Size

The first decade of this century witnessed the largest immigration that had ever been recorded in U.S. history, some 880,000 entrants per year on the average (see Table 1). After the early 1920s immigration fell steadily before increasing somewhat in the 1950s and 1960s. However, it was not until 1968 when the full impact of the 1965 amendments to the 1952 Immigration and Naturalization law became operative that immigration increased substantially. The quotas established in 1924 and reconfirmed in 1952 were eliminated in the 1965 Amendments. The 154,000 annual limit on immigration from Eastern Hemisphere countries (there were no set limits on immigration from Western Hemisphere countries) was replaced by a new preference system which allowed 290,000 persons to enter each year in addition to about 100,000 immediate relatives of citizens who could enter outside the preference limits. For the next decade the number of legal immigrants hovered around 400,000 annually. Recent statistics indicate an increase to perhaps 600,000 or even 700,000 per year—including refugees as well as legal immigrants. Should this continue, it is quite likely that average annual legal immigration in the 1980s will approach or even exceed the 880,000 noted in the 1901-1910 period. As demographer Sergio Diaz-Briquets recently commented: "... it does not take a great deal of foresight or a crystal ball to anticipate that international immigration in the Americas ... will most likely intensify during the coming decade."[2] This will be particular true of immigration to the United States.

To this we must add the untold thousands of immigrants who enter the U.S. *illegally* every year, and subtract those who decide to return to their homeland. A recent study by the U.S. Bureau of the Census suggests that the number of illegal immigrants in the U.S. in 1977 was probably no greater than 6 million and no fewer than 3 million.[3] Annual *net* illegal immigration is generally assumed to be well in excess of 100,000 and perhaps approaches a half million. We must also consider the thousands of persons who emigrate from the U.S. every year. Again, the data are almost worthless. Demographers Robert Warren and Jennifer Marks Peck suggest that emigration might be in excess of 100,000 annually, though the Census Bureau assumes it to be much less—40,000 per year.[4]

If unregulated, immigation is totally unpredictable. Economic conditions can change at the migrant's place of origin as well as at the place of destination; political upheavals may result in massive refugee movements; immigration laws in the U.S. may well undergo radical change in the near future after the recommendations of the Select Commission on Immigration and Refugee Policy are made public. One thing is certain, unless restrictions are implemented, both legal and illegal immigration will continue to be substantial and with fertility expected to remain low, immigration will be an ever more important ingredient in the determination of U.S. population growth and size.

The U.S. still does not have a population policy which might guide overall planning in the future. Yet, in 1972 the President's Commission on Population and the American Future concluded that "long-term [population] planning is necessary...."[5] More recently the Select Committee on Population of the U.S. House of Representatives recommended that "Congress should investigate more fully the effect of the population size and growth rate of the U.S. on the well-being of our people."[6]

Determining the "best" immigration policy can hardly be accomplished without an overall population policy which includes at least a

TABLE 1

U.S. Population Size and Average Annual Legal Immigration, 1901-1978

Decade	Initial Population (in 1,000s)	Annual Average Legal Immigration	Annual Immigration as a Percentage of Initial Population Size	Decennial Net Immigration as a Percentage of Decennial Population Growth[a]
1901-1910	75,995	879,539	1.16	39.6
1911-1920	91,972	573,581	0.62	17.7
1921-1930	105,711	410,721	0.39	15.0
1931-1940	122,775	52,843	0.04	[b]
1941-1950	132,228	103,504	0.08	10.3
1951-1960	151,718	251,548	0.17	10.5
1961-1970	180,007	332,168	0.18	16.5
1971-1978	203,847	437,791	0.21	21.9

[a]Net immigration = immigration minus emigration. Emigration is estimated.

[b]Emigration exceeded immigration. Net immigration = -85,000.

tentative "optimum goal"—both as to population numbers and growth rates. The 1970-72 Presidential Population Commission concluded: " . . we have found no convincing arguments for continued national population growth." More recently, demographer Ansley Coale has stated: "We must have a stationary population eventually and in many ways sooner is better than later." He cautioned, however, that " . . . the path to a stationary population leads to the need for very substantial social adjustments, some of them painful, that we must foresee and for which we must start to prepare."[8] Some determination must be made as to whether or not the U.S. should aim for zero growth at some future point in time. Once that is determined, it will be easier to arrive at certain immigration levels.

We do know that if there is no change in the current 1.9 children per woman and current legal plus illegal immigration of at least one million per year, the U.S. population will exceed 300 million in 50 years and 400 million in 100 years. Should policymakers and the citizenry accept or reject such growth and ultimate size?

Projections and Predictions

Population projections are a necessary tool for policymakers. Legislation regarding education, housing, the elderly, child care services, transportation, etc., requires information on what the demands of the society are likely to be at some future point in time, and such information depends on reliable projections of future population size and distribution.

Immigration policy in particular should not be considered without looking at the demographic impact of immigration on U.S. population. How will U.S. population size vary according to different levels of immigration? What impact will immigration have on the labor force of the future; on school enrollments; on the ethnic makeup of the population? Only after reasonable projections have been made can we make reasonable plans for the future on a wide range of activities and programs.

The art of making projections is complex. Projections should not be confused with predic-

tions. Predictions tell us what the population "will be" in future years according to the person making the predictions. Projections state certain assumptions about future trends in fertility, mortality and migration, and then, based on these assumptions, the current population is projected to a future date. Assuming the mathematical calculations are correct, the projected numbers cannot be wrong. The assumptions upon which they are based can of course be incorrect. Generally, more than one alternative projection is offered.

To the layperson examining population projections, the numbers used, especially for fertility, are somewhat puzzling, even amusing. For example, "replacement level fertility" means that women have, on the average, 2.1 children. This simply means that thousands of women upon completing their reproductive stage of life will average 2.1 live births per woman. Some will have none; others one, two . . . ten—but the average will be 2.1. Similarly, while net immigration levels vary from year to year, they are assumed to average out at 800,000, for example. Life expectancy is assumed to be 72.8 years— but some people die at birth while others become centenarians. All this is taken into consideration in arriving at the sometimes peculiar sounding assumptions used in projection models.*

What the Calculations Show

Population Size: Our goal is to ascertain the impact of immigration on the size of the U.S. population over the next 100 years. One model, serving as a control, assumes no immigration whatsoever after 1980. To best determine the long-run impact of immigration, the population is separated into two subgroups: residents as of July 1, 1980 and their descendants; and immigrants arriving after July 1, 1980 and their descendants. The term "immigrant" implies "and their descendants" though the latter are in fact native-born. Thus "resident" and "immigrant" should not be confused with "native-born" and "foreign-born."*

Table 2, panel A, illustrates the impact of fertility (with no migration) on population size.** A few points are worth noting. First, a very slight change in fertility results in a large difference in total population. For example, an increase in average family size of .2 children (from 1.8 to 2.0) leads to a difference of 7 million people in the 20 years from 1980 to 2000 and about 60 million people in 100 years (1980 versus 2080).

Second, even if fertility remains below replacement level (that is, at 1.8 children per woman) the population will nevertheless continue to grow until at least 2030 because of a built-in momentum resulting from a relatively young population. Currently, there are so many young people in or about to enter childbearing ages as a result of the baby boom, that even at 1.8 births per woman, population will continue to grow until the disporportionately large group in childbearing ages levels off and the number entering the population through birth equals that leaving the population by death. A gradual decline then follows (i.e. deaths surpass births) and within 70 to 100 years (2050 to 2080) the rate of decline itself stabilizes. That is to say, the rate no longer changes. If fertility remains at 1.8, by 2080 the population will have fallen from the assumed 222 million of 1980 to 202 million. It will then continue to fall at an unchanging annual rate of .4 percent. Thus the

*The materials used in calculating the projections for this report are discussed in some detail in the Appendix. The assumptions used and the rationale behind them are also discussed.

*Such an arbitrary dichotomy does not take into consideration the offspring of immigrant and resident parents. The impact, however, should be minimal.

**In this report, the total fertility rate (TFR) is used to indicate levels of fertility. The TFR indicates how many live births a woman would have if throughout her reproductive years she bore children at the rates which women of all ages actually did bear children in a specific year.

TABLE 2

Projected U.S. Population Size and Growth Rate, 2000 to 2080, By Level of Annual Immigration and Total Fertility Rate

Total Fertility Rate	Year 2000 Total Population (1,000s)	2000 Pop. Growth Rate (%)	2030 Total Population (1,000s)	2030 Pop. Growth Rate (%)	2050 Total Population (1,000s)	2050 Pop. Growth Rate (%)	2080 Total Population (1,000s)	2080 Pop. Growth Rate (%)
			(A) Annual Net Immigration = 0					
1.8	243,677	0.3	244,835	-0.2	277,315	-0.4	201,563	-0.4
2.0	250,348	0.4	267,797	0.03	264,851	-0.06	260,790	-0.05
2.2	257,722	0.5	295,010	0.3	311,603	0.3	341,266	0.3
			(B) Annual Net Immigration = 250,000					
1.8	249,539	0.4	261,219	-0.07	250,720	-0.2	234,870	-0.2
2.0	256,318	0.5	284,928	0.2	289,904	0.08	297,927	0.1
2.2	263,809	0.6	312,998	0.4	338,612	0.4	383,209	0.4
			(C) Annual Net Immigration = 500,000					
1.8	255,402	0.5	277,603	0.06	274,125	-0.08	268,177	-0.06
2.0	262,287	0.6	302,059	0.3	314,957	0.2	335,066	0.2
2.2	269,896	0.8	330,986	0.5	365,620	0.5	425,149	0.5
			(D) Annual Net Immigration = 750,000					
1.8	261,265	0.6	293,987	0.2	297,530	0.04	301,485	0.05
2.0	268,257	0.7	319,190	0.4	340,009	0.3	372,204	0.3
2.2	275,983	0.9	348,974	0.6	392,631	0.6	467,096	0.6
			(E) Annual Net Immigration = 1,000,000					
1.8	267,127	0.7	310,371	0.3	320,935	0.1	334,792	0.1
2.0	274,226	0.8	336,321	0.5	365,063	0.4	409,343	0.4
2.2	282,070	1.0	366,962	0.7	419,641	0.7	509,039	0.6
			(F) Annual Net Immigration = 2,000,000					
1.8	290,578	1.1	375,907	0.6	414,555	0.5	468,022	0.4
2.0	298,104	1.2	404,844	0.8	466,305	0.7	558,011	0.6
2.2	306,419	1.4	438,915	1.0	527,677	0.9	676,806	0.8

population would be reduced by half every 175 years from 2080 onward.

Interestingly, having exactly 2 live births does not lead to a zero growth population as might be expected. After peaking at 268 million in 2030, the population would then decline slightly to 261 million in 2080 and the fall would continue, albeit very slowly, thereafter.*

*An average of 2.1 and not 2.0 live births per woman are needed for one female to live to replace her mother—that is "replacement level fertility." Two factors account for this: (1) more males are born than females; (2) not all women live through their childbearing years.

Should fertility climb above replacement to 2.2 live births per woman, growth would never end. By 2080 the population would have surpassed 341 million—140 million more than would be the case if fertility had remained at 1.8.

Table 2, panels B-F, illustrates the relative impact of immigration and fertility on population size. Should the recent very low fertility level of 1.8 births per woman be maintained for the foreseeable future, net immigration of 250,000 per year would lead to a maximum population of 263 million in 2025. Beyond that date, the population would decline at a slow rate, reaching 235 million in 2080 at which time the rate of decline would be -.2 percent. A net immigration of 750,000 per year would lead to a population of 294 million in 2030 and 301 million in 2080—at which time the rate of growth would still be positive (.05 percent).

In one century, assuming fertility at 1.8 births per woman, net immigration of 750,000 per year would result in 100 million additional people. Without any net immigration the population in that year would be 202 million; with 750,000 per year it would be 301 million. In just 50 years (2030) the difference would amount to 50 million people. Higher levels of immigration would of course yield still greater totals, despite the maintenance of very low fertility (see Table 3).

This assumption of low fertility may not be realistic. Some demographers foresee an increase in family size in the near future and preliminary data from the National Center for Health Statistics suggest a total fertility rate of

TABLE 3

Differences in U.S. Population Size Between No Immigration And Selected Levels of Net Immigration, 2000-2080

Total Fertility Rate	Differences in Population Size (in 1,000s)			
	2000	2030	2050	2080
	(A) Annual Net Immigration = 250,000			
1.8	5,862	16,384	23,405	33,307
2.0	5,970	17,131	25,053	37,137
2.2	6,087	17,988	27,009	41,943
	(B) Annual Net Immigration = 500,000			
1.8	11,725	32,768	46,810	66,614
2.0	11,939	34,262	50,106	74,276
2.2	12,174	35,976	54,017	83,883
	(C) Annual Net Immigration = 750,000			
1.8	17,588	49,152	70,215	99,922
2.0	17,909	51,393	75,158	111,414
2.2	18,261	53,964	81,028	125,830
	(D) Annual Net Immigration = 1,000,000			
1.8	23,450	65,536	93,620	133,229
2.0	23,878	68,524	100,212	148,553
2.2	24,348	71,952	108,038	167,773
	(E) Annual Net Immigration = 2,000,000			
1.8	46,901	131,072	187,240	266,459
2.0	47,756	137,047	201,454	297,221
2.2	48,697	143,905	216,074	335,540

TABLE 4

Effects of Alternative Assumptions about Immigrant Fertility On the Population of the United States, 2000-2030

(Fertility of residents = 1.8 children per woman)

Year and Net Immigration Level	Fertility of Immigrants (children per woman)		
	Constant 1.8	1.8 to 2.4	Constant 2.4
		(Numbers in 1,000s)	
2000			
250,000	249,539	249,937	250,251
500 000	255,402	256,198	256,825
750,000	261,265	262,458	263,399
1,000,000	267,127	268,719	269,973
2,000,000	290,578	293,761	296,268
2030			
250,000	261,219	261,715	264,284
500,000	277,603	278,595	283,732
750,000	293,987	295,475	303,181
1,000,000	310,370	312,354	322,629
2,000,000	375,907	379,873	400,424

1.9 for 1980. Should fertility climb to 2.0 by 1985, and should net immigration be limited to 250,000 per year, the population would increase to 285 million in 50 years and to 298 million by 2080 at which time the rate of growth would still be slightly positive. If net immigration were half a million a year, the 300 million mark would be reached in 2030 and by 2080, the population would be 335 million or 110 million more than at present and 75 million more than without immigration.

Annual net immigration of 750,000 combined with a total fertility rate of 2.0 would lead to a population of 319 million in 2030 and 372 million in 2080, bringing the rate of growth to .3 percent.

If U.S. fertility rises once again above replacement level to 2.2, population growth would never cease. With immigration limited to 250,000 per year, the population would reach 264 million by 2000 and 383 million in 2080. Any additional immigration would lead to a doubling of the U.S. population by 2080.

In these projections, it was assumed that people residing in the U.S. in 1980 and their descendants, and immigrants arriving after 1980 and their descendants, would exhibit the same average fertility. This may or may not reflect reality. Two alternative projections were prepared and are discussed in the Appendix.* Table 4 describes the effect of these variations in immigrant fertility using 1.8 as the TFR for the resident population over the period 1980-2030. While the impact of higher immigrant fertility increases over time, it is not substantial until 2030 and then only under relatively high net immigration assumptions. Projections were not carried out beyond 2030. By then a significant portion of "immigrants and their descendants" would in fact be native born, and assuming higher fertility to that overall group seemed inappropriate.

Another contributory factor to changing population size is the age distribution of the immigrant population. Here, it is assumed that the age-sex distribution of 1977 legal immi-

*These assume (1) fertility of immigrants is 2.4 in 1980 and falls by .2 children every five years until it reaches the fertility level for residents; (2) immigrant fertility remains at 2.4 to 2030.

TABLE 5

Alternative Immigrant Age-Sex Distributions And Their Effect on U.S. Population, 2030

(Fertility = 1.8; Net immigration = one million)

Age Group	Assumptions of This Report		Family Reunification (1st, 2nd, 4th, and 5th preferences)		Occupational (3rd and 6th preferences)	
	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)
0-4	2.9	2.8	2.9	2.8	2.8	2.7
5-9	3.0	2.8	3.0	2.8	2.9	2.8
10-14	3.1	2.9	3.1	2.9	3.0	2.8
15-19	3.1	3.0	3.1	3.0	3.0	2.9
20-24	3.1	3.1	3.2	3.1	3.0	2.9
25-29	3.1	3.1	3.2	3.1	3.0	3.0
30-34	3.2	3.2	3.2	3.2	3.2	3.1
35-39	3.3	3.3	3.3	3.3	3.4	3.3
40-44	3.4	3.4	3.4	3.4	3.5	3.5
45-49	3.3	3.4	3.4	3.4	3.5	3.5
50-54	3.0	3.1	3.0	3.1	3.1	3.1
55-59	2.8	3.0	2.8	3.0	2.9	3.0
60-64	2.8	3.1	2.8	3.1	2.9	3.1
65-69	2.7	3.3	2.7	3.2	2.8	3.3
70-74	2.2	3.0	2.2	2.9	2.3	3.1
75-79	1.4	2.3	1.4	2.3	1.5	2.4
80+	1.4	3.2	1.4	3.2	1.4	3.2
Total Population	148,692,000	161,679,000	150,569,000	162,102,000	148,272,000	158,704,000
	310,371,000		312,671,000		306,976,000	

Family Reunification Preferences:
1. Unmarried sons and daughters of U.S. citizens and their children
2. Spouses, unmarried sons and daughters of resident aliens
4. Married sons and daughters of U.S. citizens and their spouses
5. Brothers and sisters of U.S. citizens and their spouses

Occupational Preferences:
3. Immigrants in professions and their spouses and children
6. Other workers and their spouses and children

grants (minus an estimate of age-sex distribution of recent emigrants) will be maintained in the future. Two other age distributions were considered: (1) the 1977 age-sex distribution of immigrants entering the country under the family reunification preferences; and (2) the 1977 age-sex distribution of immigrants entering under the occupational preferences. As noted in Table 5, variations in age composition can result in fairly substantial numerical differences (6 million in 50 years), and thus should be monitored regularly.

Other projections might have been as useful or relevant. We might have investigated the relative impact of immigration with even lower fertility. Nevertheless the alternative projections used here should contribute needed information regarding the demographic impact of immigration to policymakers and other interested persons.

A number of observations based on these projections warrant comment. The longer the projection period the more dramatic the differences attributable to fertility and immigration.

TABLE 6

Actual Births, Deaths, Net Immigration, Assuming Total Fertility Rate of 1.8 and Net Immigration of 250,000, 1990-2050

	Annual Numbers (in 1,000s)						
	1990	2000	2010	2020	2030	2040	2050
Births	3,579	3,169	3,134	3,036	2,873	2,797	2,708
Deaths	2,243	2,470	2,672	2,905	3,317	3,566	3,510
Net Immigration	250	250	250	250	250	250	250
Growth	1,586	949	712	381	-194	-519	-552
Total Population	238,623	249,539	256,890	261,736	261,219	256,580	250,720

For example, with net immigration constant at 250,000, the difference between fertility of 1.8 and 2.0 is 7 million in 2000; 39 million in 2050 and 63 million in 2080. However, with fertility under replacement level growth itself slows down over time and eventually becomes negative. This is an important finding, which is not always apparent. As long as natural increase is negative, *eventually* the population growth rate will also become negative before leveling off at some stationary point in the more distant future.

In determining future population size, the effect of fertility changes is stronger than that of immigration changes. For example, if net immigration is held constant at 500,000, an increase of just 10 percent in fertility (1.8 to 2.0) adds 7 million people in 20 years, 24 million in 50 years and 59 million in 100 years. On the other hand, a 50 percent increase in net immigration (500,000 to 750,000), holding fertility constant at 1.8, increases the size of the population by 6 million in 20 years, 17 million in 50 years and 33 million in 100 years.

This reflects the proportionately small size of annual net immigration compared to both the total population and the total number of births. While a half million or more newcomers per year is a large *number*, its impact on a total population of 220-250 million is not great. With some 3.5 million births per year, as there now are in the U.S., this means 6 or 7 births for every immigrant. Finally, each new-born resident will live some 75 years on the average; each new immigrant will live some 50 additional years in the U.S., on the average.

But, immigration as well as natural increase (births minus deaths) is cumulative over time. Immigration becomes a more important contributor to population growth as time goes by. For example, net immigration of 500,000 per year represents 26 percent of all growth in the 1980-90 decade if the TFR is 1.8. By the turn of the century about half of all growth will be attributable to net immigration and by 2020-2030 *all* growth will come from net immigration as births *decline* to the point that deaths exceed them.

Population grows (or declines) only through natural increase/decrease and/or net migration. As long as fertility remains below 2.1, the *intrinsic* rate of natural increase will be negative.* That is to say, in the long run deaths

*The intrinsic rate of natural increase is a hypothetical measure which indicates what the rate would be if age-specific fertility and mortality never changed. Should such conditions exist, it would take approximately 70 years to reach the point where the intrinsic rate would in fact reflect the actual situation. For example, if the current TFR (a sum of age-specific fertility rates) and life expectancy (based on age-specific mortality rates) do not change in the future, the number of deaths will eventually exceed the number of births and the rate of natural increase will be -.54 percent by around 2050.

TABLE 7

Median Age of U.S. Population, 2000 to 2080, By Fertility Level and Level of Annual Immigration

Total Fertility Rate	Median Age of Population			
	2000	2030	2050	2080
	(A) Net Immigration = 0			
1.8	36.8	4[illegible]4	43.4	44.6
2.0	36.0	39.9	40.2	41.2
2.2	35.1	37.1	37.2	38.0
	(B) Annual Net Immigration = 500,000			
1.8	36.4	41.4	42.1	43.1
2.0	35.6	39.1	39.4	40.3
2.2	34.7	36.7	36.7	37.4
	(C) Annual Net Immigration = 750,000			
1.8	36.2	41.0	41.7	42.6
2.0	35.4	38.7	39.1	39.9
2.2	34.3	36.4	36.5	37.3
	(D) Annual Net Immigration = 1,000,000			
1.8	36.1	40.6	41.3	42.3
2.0	35.3	38.4	38.8	39.7
2.2	34.3	36.2	36.3	37.1
	(E) Annual Net Immigration = 2,000,000			
1.8	35.5	39.5	40.2	41.3
2.0	34.7	37.5	38.1	39.1
2.2	33.7	35.5	35.8	36.7

will exceed births—thus the surprisingly low rate of growth noted in 2080 with a TFR of 2.0 and net immigration of 1 million (.37 percent). However, even if natural increase is intrinsically negative, the *actual* rate continues to be positive (i.e., more births than deaths) for many years even if each woman averages less than replacement level fertility. This is because there are relatively more women in the childbearing ages, because of the baby boom, than there are at the older ages when deaths normally occur. This explains the large increase to be expected in the U.S. population before the year 2000, even if fertility remains below replacement at 1.8 births per woman. This is illustrated in Table 6.

The U.S. is entering a new demographic era. At the beginning of the 20th century, both natural population increase (births minus deaths) and net immigration were positive and the total population numbered around 80 million. Today, with the population having passed

225 million, natural growth is on the verge of becoming negative as fertility levels remain low. But net immigration, which had declined in earlier decades, has once again attained the high levels noted in the early 1900s. While changes in fertility still affect population size more than do changes in immigration, over time the contribution of net immigration to population growth will become more and more important.

Age Composition: Variations in the age composition of the U.S. population will plague the nation for at least another 50 to 75 years. This results from dramatic changes in fertility during this century: the low fertility of the 1930s, the baby boom between 1947 and 1964; the baby bust of the 1970s. Between 1955 and 1964, 43 million births occurred; in a comparable span of time, between 1970 and 1979, about 33 million births occurred. Consider the different impacts on the society as these two different-sized cohorts go through their life cycle. While these are not the main concerns of this report, they help explain the changes that will

TABLE 8

Age Distribution (%) of U.S. Population, 2000 to 2080, By Fertility Level and Level of Annual Net Immigration

Total Fertility Rate	Year											
	2000			2030			2050			2080		
	5-19	20-64	65+	5-19	20-64	65+	5-19	20-64	65+	5-19	20-64	65+
	(A) Net Immigration = 0											
1.8	20.6	60.0	13.1	17.2	55.5	21.9	16.7	55.0	23.0	16.2	53.6	25.0
2.0	22.1	58.4	12.8	19.0	54.8	20.0	18.6	55.0	20.3	18.2	53.8	21.9
2.2	23.8	56.7	12.4	20.9	53.9	18.2	20.6	54.6	17.7	20.3	53.7	19.2
	(B) Annual Net Immigration = 250,000											
1.8	20.8	60.1	12.9	17.4	55.9	21.2	16.9	55.5	22.2	16.5	54.2	24.0
2.0	22.2	58.5	12.6	19.2	55.1	19.5	18.8	55.3	19.7	18.4	54.2	21.3
2.2	23.7	56.8	12.2	21.0	54.1	17.7	20.8	54.9	17.3	20.4	53.9	18.8
	(C) Annual Net Immigration = 500,000											
1.8	20.8	60.1	12.7	17.6	56.2	20.6	17.1	55.8	21.5	16.8	54.6	23.3
2.0	22.3	58.6	12.4	19.3	55.5	18.9	19.0	55.6	19.2	18.6	54.5	20.8
2.2	23.8	56.9	12.0	21.2	54.5	17.3	20.9	55.0	16.9	20.5	54.1	18.4
	(D) Annual Net Immigration = 750,000											
1.8	20.9	60.2	12.5	17.8	56.5	20.1	17.3	56.1	21.0	17.0	54.9	22.7
2.0	22.3	58.7	12.2	19.5	55.7	18.5	19.1	55.8	18.8	18.7	54.7	20.4
2.2	23.8	57.0	11.9	21.3	54.7	16.9	21.0	55.2	16.6	20.6	54.3	18.1
	(E) Annual Net Immigration = 1,000,000											
1.8	21.0	60.2	12.4	17.9	56.8	19.6	17.5	56.4	20.5	17.1	55.2	22.2
2.0	22.4	58.7	12.1	19.6	55.9	18.1	19.2	56.0	18.4	18.8	54.9	20.1
2.2	23.8	57.1	11.7	21.4	54.9	16.6	21.0	55.4	16.4	20.6	54.4	17.9
	(F) Annual Net Immigration = 2,000,000											
1.8	21.3	60.4	11.8	18.4	57.7	18.0	17.9	57.2	19.1	17.5	55.9	21.0
2.0	22.6	58.9	11.5	20.0	56.7	16.7	19.5	56.5	17.5	19.1	55.4	19.2
2.2	24.0	57.3	11.1	21.6	55.5	15.4	21.3	55.8	15.6	20.8	54.8	17.3

be forthcoming with or without immigration.

How much of an impact will immigration have on the future age-sex distribution of the population? This depends not only on the number of immigrants but also on the age-sex composition of the immigrant group. If the age-sex composition used in this report accurately reflects the future age composition of net immigration, then the conclusion is clear: immigration, regardless of size, does not influence the overall age distribution of the U.S. population to any substantial extent. As can be seen in Table 7, it does *retard* the population aging process slightly. For example, if fertility is 2.0, the median age of the population in 2080 will only vary between 41.2 years (no immigration) and 39.1 years (net immigration of 2 million). Societies age not as a result of declining mortality but as a result of declining fertility. A low fertility country will have a high median age while most developing countries with high fertility have low median ages. Thus, for example, in the U.S. in 2080, assuming constant net immigration of 500,000 the median age would be 43.1 with low fertility (1.8) and 37.4 with high fertility (2.2). Today the median age is about 30 (half the population is below that age and half is older). Continued low fertility will age the population and immigration will retard but will not stop this process. Immigration retards aging because the immigrant group is "younger" than the resident group. It fails to stop it because its impact is less powerful than that of fertility.

Numerically, immigration plays a more important role. For example, in 2030 (with a TFR of 2.0 and immigration of 500,000), the *number* of elderly will be 3.5 million greater with immigration than without it (Table 9, panel B). Yet 18.9 percent of the population will be aged 65+ compared to 20 percent without immigration (Table 8). Using the same assumptions about fertility and immigration, in 2030 the proportion of the population in the working age group (20-64) will be about the same with or without immigration. However, the numerical difference will be substantial, 21 million. Even if net immigration were limited to 250,000 a year, in 50 years there would still be 10 million additional potential members of the labor force than would be the case without any immigration (see Table 9). Clearly immigration as well as fertility will have a tremendous impact on all of society—from the school room to the place of work to the retirement home. These impacts will be discussed in a forthcoming report.

Resident and Immigrant Composition: Because of the decline in fertility and continued net immigration, immigrants and their descendants will become an ever greater portion of the total U.S. population in future years. This pro-

TABLE 9

Total Population Aged 20-64 and 65 and Over In 2030 By Fertility Level and Level of Annual Net Immigration

(in 1,000s)

Total Fertility Rate	Level of Annual Net Immigration					
	No Migrants	250,000	500,000	750,000	1,000,000	2,000,000
	(A) Population Aged 20-64					
1.8	134,155	146,018	156,117	166,218	176,317	216,715
2.0	146,754	156,946	167,419	177,755	188,091	229,422
2.2	159,032	169,626	180,219	190,815	201,408	243,785
	(B) Population Aged 65+*					
	53,654	55,418	57,182	58,945	60,709	67,764

*Fertility differentials do not affect the size of the elderly population in 2030.

TABLE 10

Percent of Post-1980 Immigrants and Descendants in Total Population, 2000-2080, by Fertility Level and Level of Net Immigration

Total Fertility Rate	Percent in Total Population			
	2000	2030	2050	2080
		(A) Annual Net Immigration = 500,000		
1.8	4.6	11.8	20.6	24.8
2.0	4.6	11.3	18.9	22.2
2.2	4.5	10.9	17.2	19.7
		(B) Annual Net Immigration = 750,000		
1.8	6.7	16.7	23.6	33.1
2.0	6.7	16.1	22.1	30.0
2.2	6.6	15.5	20.6	26.9
		(C) Annual Net Immigration = 1,000,000		
1.8	8.8	21.1	29.2	39.8
2.0	8.7	20.4	27.5	36.3
2.2	8.6	19.6	25.7	33.0
		(D) Annual Net Immigration = 2,000,000		
1.8	16.1	34.9	45.2	56.9
2.0	16.0	33.9	43.2	53.3
2.2	15.9	32.8	40.9	49.6

portion will depend on (1) level of immigration; (2) level of future natural increase or decrease; and (3) time span. As Table 10 shows, if net immigration is held at 750,000 per year and fertility is low (1.8), by 2000, 6.7 percent of the population will consist of immigrants and their descendants. By 2050, about one quarter of the population will fall in that category and one-third will do so in 2080. Almost 40 percent of the population in 2080 would be post-1980 immigrants and their descendants if net immigration averaged 1 million per year and fertility was 1.8—not too different from the present situation. This does not take into account the impact of offspring born of marriages between immigrants and residents.

An increase in fertility would, of course, mean a somewhat smaller proportion of immigrants and their descendants in the population. Similarly, a smaller number of immigrants would yield the same result.

Just as similarities as well as dissimilarities were noted earlier concerning the effect of immigration on the population at the beginning of the century and today, so too similarities and dissimilarities can be noted concerning the effect of immigration on ethnic composition between the 19th century and the next 100 years.

In the earlier period, immigration was an important contributor to growth though natural increase was also large. The contribution of immigration to the U.S. population resulted in a vastly different concept of "American." By 1900, the U.S. was no longer a predominantly "WASP" society, that is, of North and West European and Protestant origin. Rather, it had become quite different from the homogeneous society of colonial days. Indeed, demographer Campbell Gibson has calculated that, "about 32 million or 42 percent of the 1900 census population of 76 million were attributed to immigration in the 1800-1900 period."[9]

Over the next century, immigration will once again become a very important contributor to population growth, particularly when combined with negative natural increase. It seems likely that 40 percent of the 2080 population will consist of post-1980 immigrants and their descendants. The similarity with the 1800-1900 pattern ends there. Whereas 19th century immigration itself was very heterogeneous, it remains to be seen if such heterogeneity will be a characteristic of 1980-2080 immigration.

Discussion of Population Size Options

In developing immigration policy, many non-demographic factors are involved. International relations are an important aspect of the overall problem; humanitarian concerns for the millions seeking a better way of life are worthy of our attention; the responsibility of the U.S. toward poorer countries and economic growth both in the U.S. and elsewhere must be considered. However, the demographic side is also an essential factor. While limiting population size is not an "end" in itself, the true goal—that is, improved quality of life for everyone—cannot be realized if population growth is left unchecked. Thus, not only are the actual numbers critically important, but one must inquire as to whether a much larger U.S. population to feed will allow the country to maintain its role as the bread basket of the world. There is serious doubt as to whether the U.S. can continue to export basic food necessities after the year 2000 if current rates of population growth are maintained. Consider the increasing demands on energy resources that 50 million or 100 million more Americans will make. Possibly any energy savings, from "synfuels", for example, may be erased by increased adult immigration. Thus, while our concern here is solely with the demographic aspects of immigration, that demographic dimension in itself is closely related to such other issues as resource depletion, food production, etc.

A major question must be answered. How many immigrants can the U.S. reasonably accept? The U.S. can learn a great deal from Canada and Australia. Their reviews of immigration policy were based on substantive demographic research and analysis. Each developed a set of principles or objectives for immigration policy and each resulted in new immigration policies clearly tied to demographic planning.

To cite but one example from the Canadian immigration act of 1978, section 7 indicates that the federal government will table an annual report to Parliament specifying ". . . the number of immigrants that the government of Canada deems it appropriate to admit during any specified period of time." Furthermore, the government must also specify the ". . . manner in which demographic conditions have been taken into account in determining that number."[10]

Before the question "How many immigrants can the U.S. reasonably accept?" can be answered, the matter of population policy in its broadest aspects should be addressed. Should this policy advocate an eventual stationary population and if so at what size—250 million, 300 million, 1 billion? And when? In 2000? In 50 years or 100 years? Should that policy advocate more and more growth ignoring the problems associated with over-population such as resource depletion? Should that policy advocate lowering the size of the population to 200 million, 150 million, or even less, ignoring the problems related to population decline, such as an aging society?

Advocates of both unlimited growth ("Bigger is Better") and negative growth ("Small is Beautiful") have their arguments, some of which are quite cogent. A population policy based on unlimited growth might advocate both higher fertility and larger numbers of immigrants; a population policy based on negative growth might foster lower fertility and very limited immigration. However, if the recommendations of recent government commissions are

followed, then eventual zero growth would be the stated goal embodied in a population policy. But, at what level and when? That question remains unresolved. The 1970-72 President's Commission on Population and the American Future concluded: "Recognizing that our population cannot grow indefinitely and appreciating the advantages of moving now towards the stabilization of population, the Commission recommends that the nation welcome and plan for a stabilized population."[11] Furthermore it concluded: " . . . after two years of concentrated effort, we have concluded that no substantial benefits would result from continued growth of the nation's population."[12]

Bearing in mind the built-in momentum in population growth, alternative ways of reaching certain stated population goals can be suggested. Arbitrarily, let us select a stationary population of 300 million to be reached within the next 50 to 100 years (other goals based either on unlimited or negative growth can be selected). Such a goal may appear unreasonably high, representing a 33 percent increase in the present population. On the other hand, given the youth of the population and thus its momentum for growth, it may be the most realistic goal to aim for at this time.

Fertility behavior is the crucial variable. If that remains very low (TFR 1.8) net immigration of 750,000 would be the upper annual limit. This would bring the population to 294 million in 2030 and the built-in momentum would be so strong that population growth would continue, reaching 301 million by 2080 when growth would still be occurring, though at a very slow rate—.05 percent.

Any increase in fertility would change all this. If fertility climbed to 2.0 then net immigration would have to be limited to about 250,000 if zero growth were to be realized at around 300 million. Here again we must be aware of population momentum. A TFR of 2.0 and net immigration of 250,000 lead to 285 million in 2030 and 298 million in 2080 when the rate of growth would be .1 percent.

Should fertility climb to 2.2, in theory all immigration would have to cease. Small numbers like 100,000 might be tolerable as perhaps close to that number might emigrate, but zero growth would never be attained. With fertility at 2.2 and annual net immigration of 250,000, the population would have reached 313 million by 2030; and by 2080 it would be 383 million.

Similar scenarios oriented to different optimum maximum populations can be developed.

TABLE 11

Suggested Annual Net Immigration Levels According To Specified Total Fertility Rates and Optimum Maximum Population Size, Circa 2050

Total Fertility Rate	(Maximum Population) 200 million	250 million	300 million	350 million
	Annual Net Immigration			
1.8	50,000-100,000	250,000-300,000	700,000-750,000	1,000,000-1,250,000
2.0	0	50,000-100,000	250,000-300,000	500,000-600,000
2.2	0	0	50,000-100,000	200,000-250,000

In all instances, combinations of certain rates of natural growth (or decline) and net immigration will make it possible to arrive at the stated goals.

Table 11 gives an approximate estimate of the net immigration possible under certain assumptions about fertility and maximum population to be attained within the next 50 to 100 years.

It is clear from this discussion that (1) while an immigration policy necessarily should indicate the annual numerical level of entries desired, that cannot be determined unless some overall population policy is accepted; (2) any population policy (and by implication, immigration policy) must take into consideration both natural change and net immigration. The fact that population change is so sensitive to even minor alterations in fertility has led to some confusion over policy implications. The impact of fertility on population size is clearly stronger than the impact of immigration. This does not mean that immigration is an unimportant contributor to that growth. It does mean, however, that because fertility is both important and volatile, the levels of immigration, as well as fertility, must be monitored constantly in order to maintain a balance between an uncontrollable variable—fertility—and a controllable variable—immigration. Thus, immigration policy should not be determined without taking fertility into consideration.

All this suggests that the Canadian law which specifies the importance of the demographic dimensions might well be borrowed. Perhaps the annual immigration limits should be flexible and be related to the birth rate or rate of natural increase/decrease. Should fertility remain low or fall even more, then immigration levels might be raised, depending of course on the specified optimum maximum population.

The U.S. is at a critical point in its demographic history. Long proud of its rapid growth—from 4 million in 1790 to 75 million in 1900 to 227 million in 1981—increasingly it is being recognized that growth of any kind cannot long continue.

Rising anxiety about population growth began to appear in the 1960s. The baby boom generation was "coming of age" and there was fear that their parents' fertility patterns would be repeated. "Zero population growth" became a household phrase and perhaps contributed to the increased interest in the population issues which culminated in the creation of the President's Commission on Population Growth and the American Future.

The 1970s marked the beginning of an unexpected decline in fertility so great that even the short-run projections of the Commission were proven wrong. The media incorrectly heralded the attainment of zero population growth. The 1970s also saw increased attention being given to a phenomenon of mounting significance—international migration, both legal and illegal.

Recent events in Southeast Asia and the Caribbean together with an apparently worldwide desire on the part of more people to improve their lot in life by migration create new demands on most developed countries of the world— in particular the U.S.

The potential increases in immigration combined with possible natural decrease are forcing the U.S. to face up to certain unpleasant choices. On the broadest level, a population policy must be developed at least insofar as eventual population size is concerned. Once this is decided, a determination must be made as to how it is to be accomplished. What demographic path should be taken to arrive at the desired population size? More specifically to the interests of this report, what limits should be placed on immigration?

Three paths can be followed if indeed a specific level of ultimate population size is desired: (1) slight increase in fertility and lower levels of net immigration (perhaps 250,000); (2) present levels of fertility and perhaps 500,000 (net) immigrants per year; (3) lower levels of fertility (perhaps 1.5) and as many as 1 million (net) immigrants per year.

These options lead to a vastly different population composition in 50 to 100 years. Discussion of this question can lead to demagoguery

and racism, yet we must address the issue squarely and state exactly what options are available and what they mean for the future.

During the 19th and early 20th centuries, the U.S. indeed welcomed "the tired, the poor, and the huddled masses yearning to be free." Such a benign policy changed the composition of the nation; most people would add: "and for the better." This dramatic change did not come about without much bitterness and xenophobia on the part of certain segments of the population. The U.S. citizenry of today must be told of the consequences of future population-related policies and what they mean for the future size and composition of the nation. As the nation overcame such obstacles one century ago, so too should it be able to be successful once again, though under vastly different circumstances.

At the outset of this report we stated that it would be foolhardy to develop immigration policy without having some idea of desired optimum population size, and some projections detailing the impact of immigration and fertility on future population growth.

We do not as yet have any kind of population policy; we have however provided these projections using reasonable assumptions about fertility and migration trends. With this kind of information, policymakers can perhaps better answer the question "How many immigrants should the U.S. accept every year?" Once that question is answered, then and only then should we turn to other immigration related issues.

Appendix

Methodology: The cohort-component method of projecting population is used in this report. There are other, simpler methods, but these yield misleading findings. For example, currently the *crude* rate of population growth in the U.S. is about .8 percent (excluding illegal entries). Continuation of such a rate of growth would result in a doubling of the population in about 85-90 years. This fails to take into consideration the age composition of the population and leads us to assume that natural growth (i.e. births minus deaths) will continue to be positive although women are averaging fewer than two live births—a clear impossibility!

In the cohort-component method, separate assumptions are made for fertility, mortality and migration for each age and sex. In that way, the base population is literally followed through life with births being added according to the assumed age-specific fertility rates, deaths being subtracted according to age-sex-specific probability rates and net migration being added according to the stated size and age-sex distribution of that group. At five-year intervals (or at one-year intervals if desired) these components may be reassembled to produce an estimate of the population in that year.

U.S. Population Today: It is not possible to state with any great confidence the exact population of the U.S. at any given point in time. The census clock in the lobby of the Department of Commerce building in Washington, D.C. gives us an *estimate* of the size of the population—an estimate that is probably incorrect, although no one knows for certain by how much.

Three types of difficulties are involved: conceptual, methodological, and definitional.

Who shall be included in the U.S. population? More specifically, who should be counted (and who should not be counted)? Article 1, Section 2, of the U.S. Constitution, which is the

legal authority for the decennial census, makes no reference as to who should or should not be counted. The Census Bureau attempts to count all *residents* of the U.S. Thus the basic dichotomy is resident and nonresident and not citizen and alien. Anyone who is a resident of the U.S. —that is, who resides here at least semi-permanently—is included in the census. Thus permanent immigrants (though not citizens) are presumably counted. On the other hand tourists and foreign students are excluded as are foreign emissaries living in their embassies.

The methodological problem involves undercount. After each census, the Bureau undertakes a series of special studies to determine how many people were missed. In 1970 the Census Bureau estimated it omitted about 2.5% of the population or about 5 million people. A similar number was probably missed in 1960, representing a higher percent of the population. There are wide variations in the undercount by age, sex and race. It remains to be seen how many residents were missed in 1980.*

In addition to the undercount, a major question looms over the illegal immigrant population. No one knows how many are included in the census as there are no questions on legality of residence. (A question on citizenship is included.) Presumably some illegals are counted; how many and what proportion they represent of all illegals remain a mystery.

Finally, there are definitional problems. Exactly what is included in the U.S.? Should residents of territories such as Puerto Rico be counted? What about overseas personnel and the military? There are a number of different census counts of the population of the 50 states; the population including overseas military, etc. The latter is the most realistic though it excludes U.S. citizens living in foreign countries who do not work for the U.S. government.

*A recent court decision ruled that "head counts" of the population were not sufficient; the Census Bureau must use statistical procedures to compensate for non-random undercounts. On the other hand, the House of Representatives has passed a bill that would order the Census Bureau to delete any illegal immigrants it may have included in the 1980 census.

In making projections of the population, a reasonably accurate and up-to-date base population must be selected. Generally the official count at the most recent census is used, but the necessary data from the 1980 census are not yet available. The Census Bureau's Series II estimate for July 1, 1980, which includes the population of the fifty states and the District of Columbia, together with overseas personnel, serves as a base upon which projections will be made. It assumes a slight increase in the total fertility rate from 1.8 to 2.1 live births per woman by the year 2000, some decline in mortality and net immigration of 400,000 annually. The July 1, 1980, base population, according to Series II, is 222,117,904.*

Assumptions

Projections are only as good as their assumptions. However, all projections are not necessarily intended to be accurate. It is sometimes valuable to see what would happen at some future date under certain circumstances—however unrealistic these may be. The length of time involved must also be considered. The longer the time span involved, the less reliable the projections.

Conceptually, the resident population of the United States as of July 1, 1980, is separated from the "immigrant" group that enters after July 1, 1980. These are not to be confused with native and foreign-born. The resident population includes both native-born persons and immigrants who entered the country prior to July 1, 1980. The "immigrant" group consists of all the immigrants who enter after July 1, 1980, *and their descendants*. By using this basic dichotomy we can determine the effect of immigration on the future size of the nation.

*The 1980 census enumerated 226,504,825 people. Thus, the Census Bureau's Series II estimate was over 4 million short. As a result, all projections in this report err on the low side. Proportional changes, however, are not affected.

Thus we use the terms "resident" and "immigrant" realizing that the terms imply "and their descendants."

Fertility: Fertility behavior is difficult to "predict." U.S. fertility recently reached an all-time low when the total fertility rate fell under 1.8 in 1978. It is now climbing just a bit. Some experts feel that fertility will increase substantially as those born in the small cohort of the 70s become adults and choose to have relatively large families. Most, however, are convinced that fertility will remain low for the foreseeable future. Non-economic changes in the society such as the emergence of the women's liberation movement, recent innovations in contraceptive technology, and the liberalization of abortion laws all suggest continued low fertility—possibly under replacement level for many years.

Three fertility alternatives are used in this report. The 2-child family is represented by a TFR of 2.0; a 10 percent reduction yields a TFR of 1.8; a 10 percent increase results in a TFR of 2.2. For the larger two, that level will be reached by 1985. The low assumption reflects the recent situation in the U.S. However, it is possible that fertility may increase slightly. A TFR of 2.0 may well be the most realistic. The high assumption sees fertility climbing substantially by 1985.

Fluctuations occur in the age-specific fertility rates that determine the total fertility rate. While such fluctuations could be included in the projections, they would serve little value and require yet another tenuous assumption. We have followed the lead of the Census Bureau and assume no change in fertility once a certain goal is attained, realizing that this does not purely reflect reality.

The fertility of the immigrant group and its descendants must also be projected. Recent surveys suggest that Hispanic-American women expect to have more children than native-born white women. According to the 1970 census, Mexican-born women aged 35-54 had about 4 children on the average compared to about 3 for the native-born white women.

Because of the uncertainty surrounding the fertility among immigrants, three alternative projections are used: (1) immigrants and residents have the same fertility; (2) immigrants average 2.4 children in 1980 and their fertility then gradually declines by .2 every five years until it reaches that of residents; (3) immigrant fertility remains at 2.4 children.

The mean age of childbearing (now about 26) determines the length of generation which in turn affects the intrinsic rate of growth. The age-specific birth rates are such that births are about equally divided between women 20-24 and 25-29—a slight change from the past when the 20-24 rate was higher than the 25-29 rate. We assume that the present pattern will remain relatively unchanged in the future. Any deviations from this pattern would not significantly affect the overall projections.

Mortality: Life expectancy has been climbing slightly in recent years. However, there are limits to such improvements. Census Bureau projections have generally been too conservative. Progress has been greater than anticipated. The most recent projections in 1977 assumed that life expectancy would increase from 69.1 to 71.8 for males and from 77.0 to 81.0 for females between 1976 and 2050. Progress has been such that by 1978, life expectancy was "ahead of the schedule" outlined in the Census Bureau model.

We have taken the survival rates calculated by the Census Bureau for 2050 (i.e. when life expectancy is projected to be 72 for males and 81 for females) and applied these to the year 2030. We further assume that the increase will be linear. For the second 50 years, we calculated the average annual rate of change in survival rates in the Bureau projections and applied that to the 2030 rates. Life expectancy in 2080 will thus be 74.5 for males and 85.0 for females, a not unreasonable assumption.

These are the same for both residents and immigrants.

Migration: By immigrants we mean all the foreign-born people who move to the U.S. with the intention of remaining here permanently. This includes permanent immigrants, refugees, and those seeking asylum, as well as any illegal immigrants—providing they meet the criterion of intending to remain here at least relatively permanently. By emigrants we mean all those residents of the U.S. (irrespective of legal or citizenship status) who leave the country with the intention of establishing a relatively permanent residence elsewhere. The projections deal with net immigration, that is immigration minus emigration.

We should be aware of the conceptual differences that arise between the Census Bureau and the Immigration and Naturalization Service (INS) with reference to "immigration." The Census Bureau is not concerned with immigration or emigration. Rather, its constitutional mandate is to count all the people who live in the U.S. In making intercensal estimates, it looks at the number of persons who enter and leave the country—irrespective of citizenship or nationality. A returning American is entering the country in the same way as a new immigrant or refugee, in the eyes of the Census Bureau. The INS is not involved with the number of people living in the U.S. Rather, its responsibility centers on immigration and naturalization of aliens. Returning citizens are not of major concern to the INS.

Thus while fertility and mortality are easily defined, immigration remains a problem—depending on which conceptual framework is followed. We must distinguish between net civilian immigration (the Census Bureau concept) and net alien immigration (the INS concept).

In this report net immigration is reserved for what Keely and Kraly call net alien immigration.[13] While the Census Bureau's conceptual framework is valid for its stated purposes, i.e., counting all the people, it is not appropriate for a paper dealing with the impact of immigration on the population of the U.S.

There is so little reliable information on total immigration and emigration that any assumptions as to future numbers are tenuous at best. One must also consider the impact of possible new legislation that might emanate from the recommendations of the Select Commission on Immigration and Refugee Policy.

The extent of immigration is at least theoretically determined by legislative/administrative action. While we cannot "control" fertility and mortality, we can presumably "control" the number of people who enter the country in any given year.

Five alternative net immigration patterns have been selected: 250,000, 500,000, 750,000, 1,000,000, and 2,000,000. As at least 100,000 people presently leave the country in any given year, the actual number of immigrants will in fact be somewhat larger than these estimates.

Variations in the age distribution of the immigrant population can yield differences in overall population size. If all immigrants were 20-24, equally distributed by sex, one could expect a greater numerical impact than if all immigrants were elderly. In reality, age composition is not expected to vary significantly. Nevertheless, specific assumptions must be made.

For this we must rely on published INS data on permanent immigration. The age composition of the net immigrant "group" is based on the age distribution of the immigrants admitted legally in FY 1977 (462,315) minus the emigrants (100,000) whose age distribution has been calculated by Warren and Peck and adjusted for this report.[14]

Footnotes

1. Keely, Charles, "The Estimation of the Immigration Component of Population Growth," *International Migration Review*, Vol. 8, Fall, (1974), pp. 431-437.
2. Diaz-Briquets, Sergio, "International Migration in the Western Hemisphere: Perspectives for the 80s," Paper presented at the Conference of the World Future Society, Toronto, August 1980.
3. Siegel, Jacob *et al*, "Preliminary Review of Existing Studies of the Number of Illegal Residents in the United States"—unpublished paper prepared for the Select Commission on Immigration and Refugee Policy, 1980.
4. Warren, Robert and Jennifer Marks Peck, "Foreign-born Emigration from the United States: 1960 to 1970," *Demography*, Vol. 17, No. 1 (1980), pp. 71-84.
5. Commission on Population Growth and the American Future, Final Report, *Population and the American Future*, C. Westoff and R. Parke (eds.), Government Printing Office, Washington, D.C., 1972, p. 77.
6. U.S. House of Representatives, Select Committee on Population, *Final Report*, Government Printing Office, Washington, D.C. 1978, p. 50.
7. Commission on Population Growth and the American Future, *op. cit.* p. 75.
8. Coale, Ansley, "Discussion I of Social Implications of Low Fertility" by D.E.C. Eversley in *Social, Economic and Health Aspects of Low Fertility*, A. Campbell (ed.), Department of Health, Education and Welfare, 1980, p. 188.
9. Gibson, Campbell, "The Contribution of Immigration to the U.S. Population Growth: 1790-1970," *International Migration Review*, Vol. 9, No. 2. (1975), pp. 157-176.
10. Quoted in *Annual Report to Parliament on Immigration Levels: 1980*, Employment and Immigration Canada, 1980, p. 1
11. Commission on Population Growth and the American Future, *op. cit.* p. 143.
12. *Ibid.*, p. 12.
13. Keely, Charles and Ellen Kraly, "Recent Net Alien Immigration to the U.S.: Its Impact on Population Growth and Native Fertility," *Demography*, Vol. 15, No. 3, (1978), pp. 267-284.
14. Warren and Peck, *op. cit.*

The Population Reference Bureau has been telling the world about population since 1929. PRB is a private, not-profit educational organization that gathers, interprets and disseminates information on the how and implications of U.S. and world population trends. Members of the Bureau regularly receive up-to-the-minute population information from PRB's six award-winning publications, including POPULATION BULLETIN, from the experts of the International population community; INTERCOM, with its timely and WORLD POPULATION DATA SHEET with chart, a yearly update of demographic data for over 150 countries and territories; the Population Education program; and the Population Reference Library, a source of current information on population trends and issues from around the world. PRB conducts a public service program, TRENDS AND PUBLIC POLICY, series of seminars, papers and publications for legislators, government officials, and others concerned with the impact of demographic trends. PRB also issues special publications, including POPULATION HANDBOOK, the WORLD'S CHILDREN DATA SHEET, the WORLD WOMEN DATA SHEET, and INTERCOM EN ESPANOL.

The Population Reference Bureau's Library and Information Service responds to hundreds of questions about population and related issues each year. The library consists of one of the world's oldest and most complete collections of population materials.

Membership in the Population Reference Bureau costs $25 a year. Send orders to the Circulation Department, Population Reference Bureau, 2120 L Street, N.W., Washington, D.C. 20037. Individual memberships are $25 per year; $15 for college students; $50 for organizations; $15 for retirees. The rate for libraries is $30; institutions in Europe, $100.

Trustees: *Robert F. Wernick, President; *Herbert L. Berry, Chairman of the Board and of the Executive Committee; *Kathleen McDermott, Secretary of the Board; *Ben T. Edwards, Treasurer of the Board.

Virginia R. Allan, *Michael P. Boorstin, Joseph O. Brodsworth, Norman J. Bulmer, Michael O. Sullivan, Marriner C. Eccles, James B. Eskin, Melvin L. Kohn, Richard S. Ohrn, *National Secretary Thomas W. Pauken, *Francis X. Murphy, Anne Firth Murray, John J. Riggi, John Rust, Allan Sindler, Jack Steinberg, Caroline S. Schmeckebier, Thomas C. Sorensen, William D. Sweeney.

Conrad Taeuber, *Chief Executive and Demographic Consultant.*

*Members of the Executive Committee of the Board of Trustees.

Advisory Committee: Samuel Baum, Calvin L. Beale, Ronald J. Bogue, Kenny S. Brown, Philander Claxton, Jr., Caroline S. Clarkson, Hermann B. Cunningham, Douglas Ensminger, Phillip M. Hauser, Carl A. Hemker, Richard A. Hoffman, Joseph Jaffe, Jean Mayer, Arthur E. Morgan III, Benjamin Viel, Elmo R. Wayland.

Population Reference Bureau, Inc.
2120 Connecticut Avenue, N.W.
Washington, D.C. 20037 (202) 785-1940
Cable address: POPREF, WASHINGTON D.C.